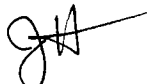


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Environmental and Health Science

To: Rick Sugarek, EPA

From: Jane Hoppin, ICF Clement 

Subject: Preliminary Discussion of Leachate for inclusion in the Endangerment Assessment for Ordot Landfill

Date: July 6, 1988

In the final preliminary Endangerment Assessment (EA) for the Ordot Landfill, the potential impacts of leachate will be discussed. Included in this discussion will be a qualitative comparison of contaminant concentrations in leachate to the Ambient Water Quality Criteria (AWQC) for both freshwater and marine life. A brief outline of that discussion is presented here. Please note that the AWQC values are established for aquatic species in the mainland United States and may not be applicable to tropical conditions.

Contaminants found in leachate include aluminum, barium, calcium, chromium, cobalt, copper, cyanide, iron, lead, magnesium, manganese, potassium, sodium, vanadium and zinc. A comparison of contaminant concentrations to the AWQC and MCL values is included on the attached table.

Only copper, cyanide, iron, lead and zinc leachate levels exceed some or all of these criteria. The level of total chromium detected in one well is equal to the freshwater chronic AWQC for Chromium (VI); it is unlikely that all chromium present is chromium (VI).

With the exception of iron and zinc, none of these contaminants were detected in Lonfit River water samples. Iron and zinc levels were below the applicable AWQC for freshwater and marine life. The current impact of leachate concentrations is unknown. No flow or volume measurements of the leachate stream and the Lonfit River were collected at the time of sampling, so a quantitative evaluation of contaminant dilution cannot be made. However, since the river volume is anticipated to be substantially greater than the leachate stream significant impact on the Lonfit River is not anticipated.

Some of the contaminants in leachate, especially copper and lead, can be expected to adsorb onto sediments in the Lonfit River based on their physicochemical properties. Since no sediment samples were collected, the impacts on bottom feeding fish cannot be evaluated.

Further discussion of leachate will be included in the final EA delivered to EPA on July 8, 1988.

Comparison of Chemical Concentrations found in Leachate and Surface Water to Ambient Water Quality Criteria
Ordot Landfill, Guam

| Chemical | --Leachate Concentration-- | | --Surface Water Concentration-- | | --Ambient Water Quality Criteria-- | | | | ---MCL--- |
|----------------|----------------------------|---------|---------------------------------|------------|------------------------------------|-------------------|-----------------|-------------------|-----------|
| | Geometric | Maximum | Upstream | Downstream | Fresh | Fresh | Marine | Marine | |
| | Mean (ug/L) | (ug/L) | (ug/L) | (ug/L) | Acute (ug/L) | Chronic (ug/L) | Acute (ug/L) | Chronic (ug/L) | (ug/L) |
| Aluminum | 630 | 3,583 | 80 | 72 | -- | -- | -- | -- | -- |
| Barium | 123 | 307 | 5 | 4 | -- | -- | -- | -- | 1000 |
| Calcium | 8,348 | 103,700 | 42,150 | 42,650 | -- | -- | -- | -- | -- |
| Total Chromium | 11 | 11 | ND | ND | | | | | |
| Chromium(VI) | | | | | 16 | 11 | 1,100 | 50.00 | 50 |
| Chromium(III) | | | | | 1,700 | 210 | 10,300 | -- | 170 |
| Cobalt | 13 | 13 | ND | ND | -- | -- | -- | -- | -- |
| Copper | 31 | 31 | ND | ND | 18 | 12 | 2.9 | 2.9 | -- |
| Cyanide | 19 | 19 | ND | ND | 22 | 5.2 | 1 | 1 | 200 |
| Iron | 1,817 | 39,260 | 106 | 171 | -- | 1,000 | -- | -- | -- |
| Lead | 10 | 18 | ND | ND | 82 | 3.2 | 140 | 6 | 50 |
| Magnesium | 42,576 | 60,290 | 8,745 | 9,188 | -- | -- | -- | -- | -- |
| Manganese | 465 | 3,161 | 20 | 5 | -- | -- | -- | -- | 50 |
| Potassium | 17,315 | 126,600 | ND | ND | -- | -- | -- | -- | -- |
| Sodium | 112,096 | 126,600 | 17,890 | 19,110 | -- | -- | -- | -- | -- |
| Vanadium | 12 | 12 | 5 | 4 | -- | -- | -- | -- | -- |
| Zinc | 27 | 73 | 9 | 14 | 320 | 47 | 170 | 58 | -- |